Better Payment Policies for Quality of Care:

Fostering the Business Case for Quality Phase I – Medicaid Demonstrations

Final Report – Site Summaries
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UNC
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Project Background

Arkansas Foundation for Medical Care's quality enhancing initiative (QEI) was implemented through the *Business Case for Quality* (BCQ), a multi-site demonstration project designed by the Center for Health Care Strategies (CHCS) to test the existence of a business case for quality for Medicaid managed care organizations. Ten Medicaid managed care entities implemented pilot interventions that addressed a range of clinical conditions and intervention strategies. The interventions, launched in April 2004, were evaluated by a research team at the University of North Carolina at Chapel Hill. BCQ was funded by the Robert Wood Johnson Foundation (RWJF) and The Commonwealth Fund (CMWF).

Arkansas

Arkansas Foundation for Medical Care

The Medicaid program in the State of Arkansas is administered by the Department of Health and Human Services (DHHS). It provides services through a primary care case management (PCCM) program and covers over 400,000 beneficiaries. The PCCM program includes a broad array of services encompassing primary care, specialist care, inpatient and outpatient hospital services, eye and dental care, mental health services, and prescription drugs. PCCM providers are paid on a fee-for-service basis.

Quality Enhancing Intervention

In 1997 the Arkansas Foundation for Medical Care (AFMC), a contracting quality improvement organization, identified nearly 3,000 asthmatic patients between the ages of five and thirty who, from analysis of claims data, had indications of suboptimal disease management. Eleven percent of these patients had at least two visits to the ER within the previous year, and 1.7% of them accounted for nearly 41% of hospitalizations for asthma. A low percentage of these patients saw a physician within 7, 14, 30 and 60 days after an ER visit or inpatient stay. Less than 30% of these 3,000 patients received inhaled steroids. Based on these findings, AFMC designed and implemented multiple interventions to improve care management including broad education campaigns targeted at physicians and office staff as well as public campaigns directed at patients, school nurses and coaches. AFMC used claims data to determine the effects of its efforts, and documented increases in doctor visits following acute episodes, and increases in the proportion of patients on inhaled steroids.

The 2004 request for proposals from CHCS offered an opportunity for Arkansas Medicaid and AFMC to carry their asthma disease management to the next stage. The goal of the specific QEI evaluated here was to move from broad educational efforts to the use of a nurse to provide one-on-one case management for selected patients.

Program implementation began in July 2004. The initial step of the QEI process was for a nurse case manager to contact targeted patients, or his/her family, to determine interest in pursuing a personalized program of asthma stabilization. For those who agreed to participate, educational materials on asthma management were provided to patients and families. AFMC informed the patient's primary care physician of their participation, and reviewed an outline of services provided by the nurse interventionist. The nurses made regular phone calls to patients and their families, reinforcing the importance of daily anti-inflammatory medication, timely refills of medications, and regular follow-up

physician visits. They also used these phone calls to monitor symptoms that might require medication adjustments. Patients with poor symptom control, after the basic care and nurse follow-up, became candidates for additional referrals for subspecialty care.

Target Population

In fiscal year 2002, AFMC identified 227 patients who experienced two or more ER visits or two hospitalizations. This small group of enrollees, while only 4% of all asthma patients, accounted for over 30% of ER visits and hospitalizations for asthma in the Medicaid program. These individuals were enrolled in the QEI, the goal of which was to improve management of these patients' asthma such that they required less use of ER and inpatient services. While the target population was chosen based on their past asthma related utilization, the evaluation methodology includes utilization for all conditions, including asthma.

Baseline Claims Findings

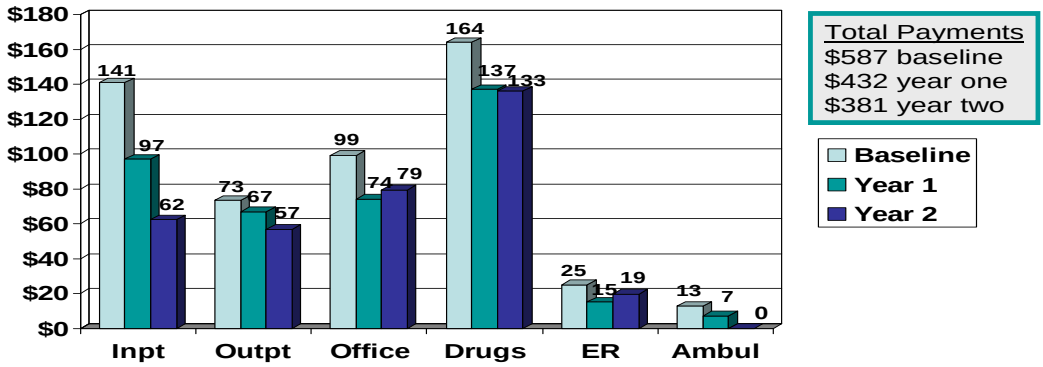
The 227 individuals ranged in age from four to thirty years, with a mean age of 12.1 years, and a median age of 11.0 years. There was some attrition in the number of enrolled individuals during the year and consequently the average member months were 202. **(Appendix 1)**

Analyses of claims data for the baseline year are presented in **Table 1.1** and **Figure 1.1**. We first analyzed the data to see if there were any patients with unusually high claims cost in the baseline year and found none. Average PMPM payments for all health care services during the baseline year were $587 of which a quarter ($141) was for inpatient care. The admission rate was 440.8 days per 1000, with a hospital day rate of 1,584.8 days per 1000 persons. Payments for hospital outpatient services were $73. There were modest payments for ER care at $25 PMPM, and for ambulance use at $13 PMPM. Payments for office visits were $99, with a rate of 8.1 visits per person. Home care, while only 0.8 visits per person, accounted for $72 PMPM in payments. Finally, outpatient prescription drugs accounted for $164 PMPM payment in the baseline year, with 32.4 scripts per person per year. Since prescription drugs are usually refilled monthly, 32.4 prescriptions are the equivalent of approximately three maintenance drugs per person.

Table 1.1: Arkansas Utilization Measures

Utilization	Baseline N=227	Year 1 N=208	Year 2 N=197
Admissions/1000	440.8	262.1	231.4
Days/1000	1,584.8	786.4	724.9
Office visits per person	8.1	6.1	5.3
ER visits per person	4.1	2.0	1.5
Home visits per person	0.8	1.0	1.3
Prescriptions per person	32.4	26.4	23.8

Figure 1.1: Arkansas PMPM Payments by Category



Year One Claims Findings

During year one of the QEI implementation, there were nine members with unusually high claims costs, costs which were generally unrelated to asthma. Their annual costs ranged from $363,887 to $620,233 with inpatient care for conditions such as grand mal seizures, convulsions and mental disorders. These nine cases were consequently labeled as outliers and removed from further

analysis. Average member months for year one of the project were 191. In year one the mean age for members was 13.

Total PMPM payments declined 26.5%, from $587 to $432 between baseline and year one (**Figure 1.1**). The category of care with the largest decline in payments was inpatient care, with a 31.3% drop. The admission rate decreased 40.5% and the day rate was cut in half (**Table 1.1**). Payments for hospital outpatient care decreased modestly, from $73 to $67, as did payments for both ER and ambulance services. Payments for office care declined, from $99 to $74, corresponding to a small decline in utilization from an average 8.1 visits to 6.1. Surprisingly, payments for drugs declined despite the program's focus on encouraging patients to remain on maintenance medications.

Year Two Claims Findings

One hundred ninety-seven individuals representing 195 average member months participated in the second year of the QEI demonstration. During year two, 5 members had unusually high claim costs, unrelated to asthma. These five members were removed from the analysis, resulting in 195 average member months for the year. In year two the mean age for members remained the same at 13 years. Total PMPM payments for all services declined 11.8% to $381. This decline in the second year was due to a further reduction in hospital admissions (231.4 per 1000 persons) and hospital days (724.9 days per 1000 persons). This resulted in a $35 drop in PMPM payments for inpatient care. Modest decreases were seen in office visit and ER visit rates as well as the number of prescriptions per person. (**Table 1.1, Figure 1.1)**

Over the two years of the QEI, total payments for all services declined 35.1%. The most significant reductions in utilization occurred in hospital inpatient care, with a 54% reduction in days. The use of the emergency room also declined, from a rate of 4.1 visits to 1.5. Given the emphasis on outpatient management of these patients' asthma, we were surprised to see that measures of outpatient care also declined. The office visit rate was 8.1 visits per person in the baseline period, declining to 5.4 in year two. Another surprising finding was the decline in the number of prescriptions per person, which dropped from 32.4 to 23.8.

Investment and Operating Costs

Total investment costs in the baseline year were $43,534, of which $18,913 were for personnel costs for portions of full-time equivalents (FTEs) for a Principal Investigator, Systems Analyst and other support staff involved in planning the QEI **(Table 1.2)**. A modest amount of expenditures were for office supplies, equipment and other expenses. During year one, AFMC spent $63,958 in operating expense to administer the QEI. The largest expenditure, $47,155, was for personnel, including a Program Manager, Statistician and the Nurse Case Manager. During year two the operating costs were significantly lower,

with a total of $21,772. This sharp decline reflects a reduction in personnel costs.

Table 1.2: Arkansas Operating Costs

Costs	Baseline	Year 1	Year 2
Personnel	$18,913	$47,155	$15,246
Office	$1,357	$2,178	$1,261
Equipment	$6,861	0	0
Other direct	$6,225	0	0
Indirect	$10,178	$4,625	$5,265
Total	$43,534	$63,958	$21,772

Return on Investment (ROI)

Calculation of ROI for Arkansas' QEI is demonstrated in **Table 1.3**. AFMC invested $43,534 in the baseline year, spent $63,958 in operating costs in year one and $21,772 in year two of the QEI. Using a 3% discount rate, the total discounted investment costs, including baseline, year one and year two were $126,151. Claims savings in year one were $356,704, or $345,315 on a discounted basis. This was followed by claims savings of $482,742 in year two, or $455,031 on a discounted basis. The overall return on investment, measured in terms of net present value (savings less the investment costs) was $801,345. For every dollar invested, this represents $6.35 returned in savings.

Table 1.3: Arkansas Return on Investment

	Baseline	Year 1	Year 2	Total
Investment in QEI				
Investment/Operational Costs	$43,534	$63,958	$21,772	
Discounted Costs	$43,534	$62,095	$20,522	$126,151
Savings/Increases from QEI				
Utilization Savings		$356,704	$482,742	
Discounted Savings		$346,315	$455,031	$801,345
ROI Metrics				
Benefit-Cost Ratio				6.35
Net Present Value				$675,194 positive

Quality Measures

AFMC chose two intermediate or proxy outcome measures to track the impact of the QEI. The first measure was the average number of emergency room visits or hospitalizations where the primary diagnosis was asthma. For the baseline year, the combined rate for emergency room and hospital admissions was 1.34 per person. Following introduction of the QEI, this rate fell to 0.81 per person, followed by a further drop to 0.38 per person in year two. The second and related quality measure was the percent of members who had at least one emergency room visit or hospitalization with a primary diagnosis of asthma. Based on selection criteria for their target population, this rate was 100% for the baseline year. In year one following the QEI implementation, this rate dropped to 69% and a further decline to 56% in year two. Both of these measures are positive indications that the care of this target population has improved.

APPENDIX 1

AR – Arkansas Foundation (revised baseline to include only members with ER and/or hospital visits)									
QEI - Childhood Asthma		**QEI Start Date:07/09/2004**						**Data Contact - Clayton Wells**	
	Age Statistics							**Individual Average PMPM**	
Utilization and Membership	**Min**	**Max**	**Mean**	**Median**	**Members in Claims**	**Average Member Months**	**Total Payments PMPM**	**LOW**	**HIGH**
Baseline: 07/03-06/04	4	30	12.1	11	227	202	587	$13.58	$11,151
Year 1:07/04-06/05	5	31	12.8	11	208*	191	432	$0.26	$4,948
Year 2:07/05-06/06	6	32	13.5	12	197**	195	381	$2.75	$3,435

Utilization Measures	**Baseline**	**Year 1**	**Year 2**
Admissions/1000	440.77	262.12	231.36
Days/1000	1584.79	786.37	724.94
Office visits/person	8.14	6.09	5.35
ER visits/person	4.12	1.96	1.54
Home visits/person	0.84	1.03	1.33
Prescriptions/person	32.38	26.45	23.83

PMPM Payments	**Baseline**	**%Tot**	**Year 1**	**%Tot**	**Year 2**	**%Tot**
Inpatient	$140.77	24.0	$96.69	22.4	$62.24	16.3
Outpatient	$73.43	12.5	$66.70	15.4	$56.84	14.9
Office	$99.21	16.9	$73.54	17.0	$79.33	20.8
ER	$25.02	4.3	$15.47	3.6	$19.53	5.1
Ambulance	$12.63	2.2	$7.38	1.7	$0.00	0
Home	$71.54	12.2	$33.99	7.9	$26.05	6.8
Pharmacy	$163.99	27.9	$137.37	31.8	$136.10	35.7
Other	$0.84	0.1	$0.66	0.2	$1.04	0.4
Total	$587.43	100%	$431.80	100%	$381.13	100%

* year1 excludes 9 outliers

**year2 excludes 5 outliers